CLASSIFICATION [redacted] 25X1A 25X1

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

REPORT NO. [redacted]

CD NO.

COUNTRY Germany (Russian Zone)

DATE DISTR. 18 October 1949

SUBJECT Description of OSW Noise Diode #2584

NO. OF PAGES 3

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SUPPLEMENT TO REPORT NO.

[redacted]

THIS IS UNEVALUATED INFORMATION

SOURCE

1. Noise Diode of type OSW 2584

   a. The noise diode of type OSW-2584 has been designed for the measuring of the set noise of tubes and detectors, functioning between saturation points. The development has not yet been finished.

   b. Until now there has been only the diode of type LG-16 (same as OSW 2088). This diode functions at a frequency of 50 cm, in special cases it may be used for frequencies of down to 16 cm. If a noise performance of several hundred kT_o is desired and the LG-16 diode proves to be inadequate, several diodes will have to be connected in parallel. (sic)

2. Technical set-up of the noise diode of type OSW 2584 (see attached diagrams)

   a. In its basic principle, the noise diode corresponds to the structure of a section of a concentric line. The outer body, equipped with cooling ribs, consists of two soldered sections placed at right angles: The anode casing (1) and the attachment (14). Both constitute the outside main circuit of the concentric line. The inner section consists of the cathode fastenings (3 and 5) and the cathode (4), the rectangular spring (8), and the sleeve (13). The vacuum is sealed by two ceramics housed in ferro-nickel sleeves (2 and 15). The ergan guide disk (ε-3.2) serves for the centering of the cathode (6); in order to guarantee a constant resistance of 70 Ohm, the cross section is enlarged accordingly. For the same reason, the diameter of the copper ring (7) has been narrowed.

   b. The pump fitting (10) with glass tube (11), and the getter (12) is attached to the copper flange (9).

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c. The following points are important for the installation of the internal circuit:

(1) Prior to the mounting of the copper flange (9), the section of the internal circuit consisting of the cathode(4), the two fastenings devices (3 and 5), and the knee (3) is inserted through the large bore in the anode casing (1) and then screwed into the sleeve (13). Thereupon the inner circuit is connected, at the marked spots, with the inner-ferro-nickel sleeves housing the soldered ceramics (2 and 15). The cathode must be given the right pre-stressing and must be symmetrical in relation to the anode. Then the copper (9) is mounted and soldered to the casing.

(2) Data: (see diagram2)

(3) Length of the emitting cathode "a" 10 mm

(4) Diameter of the pasted cathode "dk" 0.6 mm

(5) Diameter of anode "D" 1.9 mm (system)

(6) Diameter of cathode continuation forming the inner circuit, "d_1" 1.8 mm

(7) Diameter of anode continuation forming the outer conductor, "D_1" 5.8 mm

(8) Difference of length between cathode and anode "Δ" 0.9 mm at both sides

(9) Diameter of ceramic disks "S" 20 mm (5)

(10) Electrical data: 10 om; U_f > 1080 volt; I_a 220 mA

(11) Anode power dissination. P_{gl} 238 watt

(12) Measured data for a resistance of m 0.7:

E_{fil} (volts)	2.15	2.22	2.36
I_{fil} (amps)	9.0	9.25	9.65
P_{fil} (watts)	19.4	20.6	22.7
E_p (volts)	1100	1100	1100

In order to obtain the desired saturation current it is advisable to insert U_f (filament current regulator) at an anode voltage of 1,100, for

$P = 1.4 \times I_a \times kT_o$

(13) I Saturation:

(mA)	72	142	215
PkT_o	100	200	300

(14) Air cooling 200 liters per minute.

(15) The derivation of the formula $P = 1.4\ I_a kT_o$ is based on Rothe-Kleen.

3. General:

a. The percentage of rejections in the production of the noise diode of type OSW 2584 was exceptionally high. The sealing of the vacuum and the centering of the cathode proved difficult.

b. The conduct of the experiments concerned is strictly guarded. As compared with international results, the experiments have progressed rather far. The desired aim is the obtaining of 10 cm waves at 300 kT . Only every twentieth tube of those manufactured was serviceable.

25X1A [redacted] Comment:

a. Due to the high rejection ratio, the development of the above described noise diode cannot be considered to have reached a satisfactory stage.

b. The development department of the Oberspree Plant is definitely controlled by the MOSOW Ministry for the Electrical Industry.

2 Annexes: (on 1 sheet)
(1) Diagram of Noise Diode Developed in the OSW Cable Plant.
(2) Diagram of Noise Diode Developed in the OSW Cable Plant.

Annex 1

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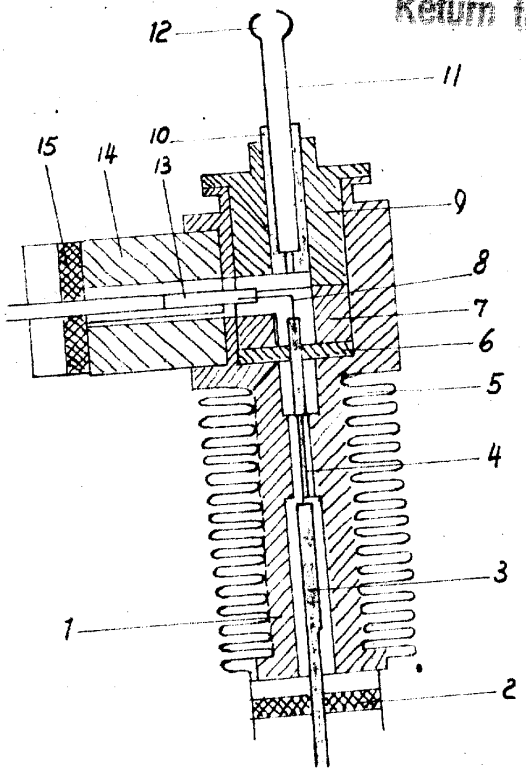
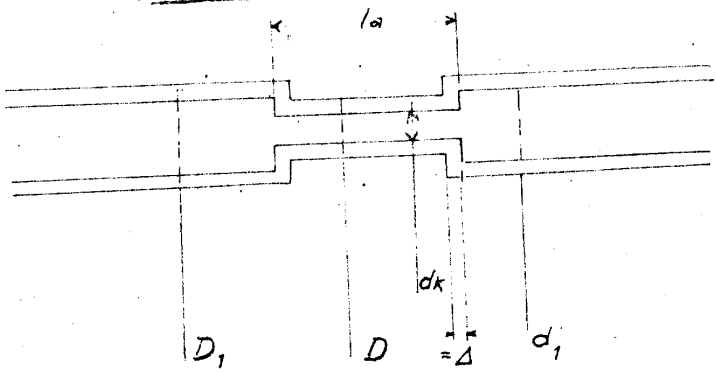
Diagram of Noise Diode Developed in the OSV Cable Plant



Annex 2

Diagram of Noise Diode Developed in the OSV Cable Plant



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